

### REMARKS IN SUPPORT OF PATENTABILITY

The examiner asserted that “applicant’s traversal (of the restriction requirement) is on the grounds that the restriction of the pending claims would create a financial hardship to Xtreme Fibers, Inc.” While this was a portion of the argument, applicant presented in support of the traverse of the restriction requirement it was **not** the principal argument presented by the applicants.

Applicants’ principal argument in support of the traverse of the restriction requirement was and is that the examiner failed to sustain the examiner’s evidentiary burden of providing reasons and/or examples to support the examiner’s conclusions in drawing the restriction requirement and applying the restriction requirement to the claims at issue.

Applicants again assert that the examining attorney has failed to meet the examiner’s burden of providing reasoning and/or examples in support of the examining attorney’s restriction position. In that regard, applicants incorporate by reference and again present applicants’ position on this issue, applicants respectfully submit the examiner has not addressed but rather has overlooked and ignored the applicants’ position as evidenced by the examiner’s erroneous assertion that “applicant’s traversal is on the grounds a restriction of the pending claims would create a financial hardship to Xtreme Fibers, Inc.”, which is the first sentence of numbered paragraph one of the official action of 23 April 2004.

Here is applicants’ position, restated:

Applicants respectfully note that in the restriction context the test for whether inventions, defined by groups of claims, are “distinct” is a multi-prong test: “Distinct means that two or more

subjects as disclosed are related...but are capable of separate manufacture, use, or sale as claimed, **AND ARE PATENTABLE** (novel and unobvious) **OVER EACH OTHER**". *MPEP 802.01*. (emphasis in the original)

In asserting distinctness among all of the groups of inventions, each group from the other, the examiner has stated that the inventions of Groups I vis-à-vis the inventions of Groups II & III taken together are related as mutually exclusive species in an intermediate-final product relationship.

Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3<sup>rd</sup> paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate product of textured yarns, staple fibers, or single and/or multi-component yarns is deemed a useful component in fiber-reinforced structures, building materials and laminates.

The examiner has further asserted restriction between the inventions of Groups 1 and 2 taken together and the inventions of Group 3, as allegedly being related as mutually exclusive species in an intermediate-final product relationship:

The inventions of Groups (I & II) and III are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product (MPEP § 806.04(b), 3<sup>rd</sup> paragraph), and the species are patentably distinct (MPEP § 806.04(h)). In the instant case, the intermediate nonwoven product comprising the textured yarns, staple fibers, or single and/or multi-component is useful component in textile laminates such as those used in disposable personal care articles or in medical applications.

Applicants respectfully submit that, **for purposes of restriction analysis only** and without prejudice to whatever position applicants may take on patentability in the course of prosecution of the claims on their merits, the claims in the three groups into which they have been segregated by the examiner may not be patentable over one another. Without prejudice to that position, applicants respectfully note that whether or not the claims of the respective groups are patentable over one another, it is the examiner's burden to show lack of patentability of the groups of claims vis-à-vis one another in order to satisfy the patentability prong of the distinctness test. The examiner has not done this.

Applicants respectfully note that the restriction requirement is **silent** respecting the patentability of any claim, in any one of the groups of claims, vis-à-vis any claim in any of the other groups. Applicants further respectfully note that the fact that the claims have been arbitrarily categorized into separate classes and subclasses by the examiner in levying the restriction requirement does not address the issue of the patentability of the groups of claims vis-à-vis one another; there is nothing addressing patentability prong of the distinctness test for purposes for restriction analysis.

Further respecting the restriction requirement, applicants further traverse the restriction requirement and request reconsideration of the same since the restriction requirement as presently stated by the examiner *fails to include certain of the claims pending in the application in any of the groups into which the claims have been restricted*. Specifically, in the official action and the restriction stated at the middle of the third page of the action, under the heading "Detailed Action" in paragraph one, where three groups of claims are given identified by the Roman numerals I, II and III, there is **no** mention of applicant's claims 35, 36, 37 or 38, all of which are pending in the application. Moreover, there is no mention of applicant's claims 39, 40, 41, 42, 43, 44, 45, 46 or 47, all of which have been cancelled but for which applicants are nevertheless entitled to know the examiner's position respecting the restriction of those claims since, in the event the restriction requirement is withdrawn and all of the claims in the application are examined together or if a petition against the restriction requirement is unsuccessful, applicants are entitled to know the groups for examination purposes into which the examiner has apparently relegated claims 35 through 38 and is entitled to know the examiner's position as to the appropriate grouping for

cancelled claims 39 through 47, in the event applicant seeks further prosecution of these claims through a divisional patent application or otherwise. Accordingly, if for no other reason, the restriction requirement should be reconsidered and withdrawn since it fails to address all of the claims pending in the application.

The error in the examiner's restriction position is further evidenced by the very prior art patent the examiner has cited in support of the art-based rejection of the claims. The examiner has cited United States patent 6,479,143 to Tamaru, et al. in support of the art-based rejection, which is discussed below. Applicants respectfully direct the examiner's attention to the fact that while the examiner has required restriction between the claims allegedly grouped to "textured yarns, stapled fibers or single and/or multi-component yarns" in Group I and claims directed to "nonwoven fabric" in Group II, U.S. patent 6,479,143 **includes claims directed to "fiber"** (such as claims 1 through 4 of that patent) **as well as claims directed to "nonwoven fabric including the fiber of claim 1..."** together with other constituents. (Claims 6, 7, 10 and 11 are exemplary of this.) Hence, the very patent the examiner has cited as a prior art reference in rejecting applicant's claims on the merits *refutes and is inconsistent with the examiner's position on restriction.*

Applicants should not be penalized by the maintenance of the restriction requirement when Messrs. Tamaru, et al. were apparently not burdened with such a restriction requirement when they presented an independent claim directed to "a resin fiber" and dependent claims directed to a "nonwoven fabric

comprising the heat meltable flooring-containing resin fiber of claim 1...", in the same manner as applicants have presented their claims.

Applicants note that there are many common characteristics and much common subject matter shared by the claims the examiner segregated into separate, purportedly "distinct", groups. The inventions of Group 1 by the terms of the claims are directed to yarns and fibers. The inventions of Group 2, according to the terms of the claims, are directed to fabric (claim 10—which depends from claim 3 of Group 1 and claims 12, 14 and 15—all of which depend from claim 11 of Group 1), a carded batt (claim 13), yarns and fibers (claims 20 and 21), a needlefelt (claims 29 and 30) derived from fibers defined by claim 11 (which significantly is a member of Group 1), and a scrim supported needlefelt (claims 48, 49, 50 and 51) made from a blend of the fibers defined by claim 11 (which applicants note again is a member of Group 1).

While applicants readily concede that the textured yarns, staple fibers and single and/or multicomponent yarns of claims 1 through 9 and 11 of Group 1 may be useful to make products in addition to, and other than, the products that are the subject of the claims of Group 2, **for purposes of restriction analysis only**, applicants **do not** concede that the claims of Group 1 directed to the textured yarns, staple fibers and single and/or multicomponent yarns, namely claims 1 through 9 and 11, are *patentably* distinct from the claims of Group 2, namely claims 12 through 21, 29, 30 and 48 through 51. This is especially so when applicants note that of the twenty claims constituting Group 2, (claims 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 29, 30, 48, 49, 50, 51, 57, and 58) only

three of those claims (claims 20, 21 and 57) are independent claims. The remaining claims of Group 2 all depend, directly or indirectly, from claim 11 which is a member of Group 1.<sup>1</sup> Hence, the overwhelming majority of the claims in Group 2 incorporate limitations of a claim from Group 1. In light of this, applicants respectfully seriously question the claim grouping for restriction purposes as set forth by the examiner in the official action.

Further respecting the requirement for a showing of patentability as between the claims of Groups 1 and 2 and the lack of same in the restriction requirement, applicants respectfully submit, for purposes of restriction analysis only, that it is may be difficult, if not impossible for the examiner to assert unobvious patentability of the claims of Group 2 vis-à-vis the claims of Group 1. In that regard, applicants respectfully note that Group 2 constitutes twenty claims, only three of which are independent. The remaining seventeen claims of Group 2 all depend, directly or indirectly, from claims which are members of Group 1. Hence, nearly all of the claims in Group 2 involve structural or material limitations imported from the claims of Group 1. **For purposes of restriction analysis only**, applicants respectfully submit that the examiner has made no demonstration of putative unobvious patentability of the claims of Group 2, and is unable to do so given that those claims incorporate numerous material and structural limitations recited in the claims of Group 1. In light of the clear requirement for a showing by the examiner of unobvious patentability as between the claims of respective groups in order to support a restriction requirement, the

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<sup>1</sup> See paragraphs 9, 10, 13 and 15 of the previously submitted Declaration of Frank Cistone.

absence of such a showing by the examiner respecting this restriction requirement and the apparent evidentiary impossibility of doing so, applicants again respectfully submit that the restriction requirement, in its new and current form, is fundamentally flawed and without adequate basis.

For the foregoing reasons, applicants again respectfully submit that the examiner's restriction requirement is erroneous, does not meet the controlling criteria for a finding of distinctness and should be withdrawn.

The examiner has further based the distinctness position on an assertion that the inventions defined by the segregated groups of claims are distinct because they purportedly "have acquired a separate status in the art as shown by their different classification...". Applicants respectfully submit that this bald conclusion does not support a finding of distinctness. Classification in the sense used by the examiner relates to where the patents, which might issue containing such claims, would be classified.

Asserting that the issuing patents would be differently classified presumes that the claims of the prospective patents would be patentably distinct one from another. However, as demonstrated above, there has been no showing by the examiner of patentable unobviousness among or between the groups of claims. Without a showing of patentable unobviousness among or between the groups of claims, the assertion that the claims in the groups, were they to issue in different patents, would be in different classes is unsupported speculation. In this regard, applicant again direct the examiner's attention to the reference cited by the examiner, namely United States patent 6,479,143 which has claims which are

analogous in form to applicant's proposed claims and contradicts the examiner's position concerning the requirement for restriction between claims directed to yarns and staple fibers and claims directed to nonwoven fabrics.

### **The Required Scope Of The Search**

The most salient consideration for insisting upon restriction and determining the propriety of a restriction requirement is the scope of the examiner's search for prior art. Applicants are entitled to a full and thorough search of the prior art as a consequence of having filed their application and having paid the statutory application fee:

The director shall cause an examination to be made of the application and the alleged new invention; and if on such examination it appears that the applicant is entitled to a patent under the law, the director shall issue a patent therefor. 35 U.S.C. 131

Restriction is proper only where an examiner would be unduly burdened by searching numerous, **unrelated** inventions or technologies. The scope of a search for related inventions, even though possibly burdensome, cannot by itself justify restriction of related inventions. If an application includes claims to related inventions that happen to be "distinct" (as such term as used in restriction practice) inventions, the examiner **must** examine the application on its merits, in its entirety, if the search and examination of the entire patent application can be made without a serious burden on the examiner:

If the search and examination of **an entire application** can be made without serious burden, the examiner **must examine it on the merits, even though it includes claims to independent or distinct inventions.** MPEP 803.



In developing a search strategy and mapping the scope of a search, claims are to be given their broadest reasonable interpretation, both literally and by equivalents:

All subject matter that is the equivalent of the subject matter as defined in the claim, even though specifically different from the definition in the claim, must be considered unless expressly excluded by the claimed subject matter. MPEP 904.01(b)

The examiner will not be unduly burdened by searching and examining all of the claims, as currently presented by applicants, in a single application. The examiner's search will not be narrowed or reduced by compliance with the restriction requirement, since applicants have clearly manifested their intent to claim each novel and nonobvious aspect of the disclosed subject matter as evidenced by the claims in the application.

As respects to claims pending in the application and applicant's provisional election of the claims of Group 2 for immediate prosecution, the examiner's search respecting those claims, in order to be thorough will necessarily need to search with respect to the subject matter of the claims of Group 1 as well. Since seventeen of the twenty claims of Group 2 are dependent on and hence incorporate structural limitations, material limitations, or both from claims of Group 1, the yarn and fiber subject matter of the claims of Group 1 will necessarily have to be searched by the examiner in the course of the examiner's determination as to whether the claims of Group 2, being directed to fabric (claims 12, 14 and 15) made from yarns according to claim 3 and 11 of Group I, a carded batt (claim 13) made from a yarn according to claim 11 of Group I, other

yarns and fibers (claims 20 and 21), a needlefelt (claims 29 and 30) derived from fibers defined by claims in Group 1, and a scrim support needlefelt (claims 48 through 51) made from a blend of fibers defined by claims in Group 1, are patentable.

The examiner's instructional guidelines for performing a search for any application are set forth in the MPEP. The guidelines require the examiner to search in classes and subclasses in which arguably distinct (as defined by the MPEP) inventions would be classified:

"Not only must the art be searched with which the invention claimed is classifiable, but **also all analogous arts regardless of where classified.**

The determination of when arts are analogous is at times difficult. It depends upon the necessary essential function or utility of the subject matter covered by the claims, and not upon what it is called. MPEP 904.01(c) (emphasis added).

A proper field of search normally includes the subclass in which the claimed subject matter of an application would be properly classified. MPEP 904.02(a), ¶1.

In outlining a field of search the examiner should note every class and subclass under the U.S. Patent Classification system and other organized systems of literature, **that may have material pertinent to the subject matter as claimed.** Every subclass, digest and cross reference art collection pertinent to each type of invention claimed should be listed, from the largest combination through the various subcombinations to the most elementary part. **The search should extend to all probable areas relevant to the claimed subject matter and should cover the disclosed features which might reasonably be expected to be claimed.** MPEP 904.02(a), ¶2 (emphasis added).

It is a prerequisite to a speedy and just determination of the issues involved in the examination of an application that a careful and comprehensive search, **commensurate with the limitations appearing in the most detailed claims** in the case, be made in preparing the first action ... It is normally not enough that references be selected to meet only the terms of the claims alone, especially if only broad claims are presented; **but the search**

**should, insofar as possible, also cover all subject matter which the examiner reasonably anticipates might be incorporated into applicant's amendment.** MPEP 904.03, ¶ 1 (emphasis added)

In doing a complete search, the examiner should find and cite references that, while not needed for treating the claims, would be useful for forestalling the presentation of claims to other subject matter regarded by applicant as his or her invention, by showing that this other subject matter is old or obvious. MPEP 904.03 ¶ 2

In selecting the references to be cited, the examiner should carefully compare the references with one another and with the applicant's disclosure... MPEP 904.03 ¶ 3.

From the above-quoted guidelines, it is clear that the scope of a proper search includes:

- (1) Classes and subclasses in which the claimed subject matter is classified;
- (2) Classes and subclasses that may have material pertinent to the claimed subject matter;
- (3) Classes and subclasses containing subject matter present in the disclosure which might reasonably be expected to be claimed during the prosecution; and
- (4) Classes and subclasses that may contain subject matter disclosing material related to features which might reasonably be expected to be claimed.

Given this mandate, Applicants submit that all of the classes defined by the examiner as those in which the claims of this application arguably reside, must be searched no matter which group of claims Applicants have elected for immediate prosecution.<sup>2</sup> Accordingly, from the guidance provided by the Manual of Patent Examining Procedure, it is clear that the examiner, even if the restriction requirements stands, will need to search the classes and subclasses

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<sup>2</sup> See paragraphs 11, 12, 14 and 15 of the previously submitted Declaration of Frank Cistone.

in which the claims of Group 2, which have been provisionally elected by the applicants, reside. Additionally, the examiner will need to search other classes and subclasses which may have material pertinent to the claimed subject matter. These classes and subclasses would surely include the classes and subclasses for the claims of Group 1 directed to the yarns and fibers, which are limitations appearing in the claims of Group 2 as demonstrated above.

The examiner will further need to search classes and subclasses containing subject matter present in the disclosure which might reasonably be expected to be claimed during the prosecution; this includes fabrics and methods for use of fabrics as well as the subject matter of the claims of Group 3. Additionally, the examiner will need to search classes and subclasses relating to methods for manufacture of yarns, fibers, fabrics and the other subject matter disclosed in the instant application since references relating to methods of manufacture may be relevant to the patentability of the fabrics to which the claims of Group 2, the provisionally elected group, are directed.

All of this being the case, it should be clear that the examiner's search for the elected group of claims will necessarily be of sufficient breadth to serve as adequate search for the non-elected groups of claims, namely the claims of Group 1 and 3. It surely makes no sense for applicants to be required to file divisional applications to secure a search of the claims of Groups 1 and 3 when such searches will necessarily be performed in the course of prosecution of the instant application. Conservation of resources, both time and financial, mandates that, given the required scope of the search for the claims of Group 2

as elected by the applicants, no further searching be performed and the claims of Group 1 and 3 also be considered and prosecuted in the instant application. No other approach makes sense.

U.S. patent 6,479,143 describes the addressed problem as "However since a surface of fluorine-containing resin has good lubricity, sufficient intermingling between the fibers cannot be obtained and therefore the fluorine containing resin is not suitable, for example, as a material for nonwoven fabrics" (column 1, line 20). This is a great oversimplification. First, the mechanical properties of a nonwoven material are in most cases not dominated by surface interaction but rather mechanical entanglement. This is achieved through different processes, the most common of which is needled felting where a needling process causes fibers to mechanically interlock. Other processes include air entangling and water jet entangling. Certainly the U.S. patent 6,479,143 claim that branched fibers are a benefit is accurate. But, an equally important fiber attribute is crimp. The ability of a sharp, angular crimp is extremely important in the carding process used during nonwovens manufacturing, as well as during the needling process when fibers are mechanically linked. U.S. patent 6,479,143 ignores this completely in the statement of the problem, yet it is vital to making a good felt.

In fact, in the art of making PTFE fiber based nonwovens crimp quality is a more dominant concern than surface lubricity. Manufacturers of PTFE fiber have not been able to manufacture staple fiber with sharp angular crimp, making it very difficult to card. This has required the industry to develop modified carding

techniques, which limit the number of felters that can easily card PTFE fibers, decreasing competitiveness and increasing costs.

In the statement of the problem U.S. patent 6,479,143 also ignores the use of woven or knitted scrim as a layer in perfluorinated felts to add strength and dimensional stability. Although the U.S. patent 6,479,143 problem statement concludes that one cannot make a good nonwoven from perfluorinated fibers, in fact close to 1 million pounds of PTFE felts are sold and used yearly in high temperature filtration.

Applicants agree with U.S. patent 6,479,143 that there is opportunity to improve the technology associated with felts containing fibers made from fluoropolymers, and in particular perfluoropolymers. However, U.S. patent 6,479,143 teaches at most only some specific, and limited benefits of branched, melt processable fibers.

Applicants have discovered, independently, different and useful technologies based on an extruded melt processable fluoropolymer fiber that improve the art of fluoropolymer fiber nonwoven technology.

In the process disclosed in U.S. patent 6,479,143, the fiber is made by a process Applicants have found that gives it a branched and crimped structure. In other words, the crimping that U.S. patent 6,479,143 addresses is not an independently controlled process, but rather is a consequence of the fiber manufacturing step. U.S. patent 6,479,143 gives no indication that the resulting crimp is particularly favorable. U.S. patent 6,479,143 relies on the branched nature of the fiber, not the crimp, to achieve the improvement in felt quality. Also,

different processes such as felting, air laying, yarn twisting, etc., require differing degrees of crimp, but U.S. patent 6,479,143 does not disclose the ability to control crimp.

Applicants have discovered that unlike other perfluorinated fibers, melt processable perfluoropolymer fibers can be made with sharp angular crimp. This was unexpected since the inability to sharply crimp PTFE fibers has never been explained. Even though melt processable perfluoropolymer fibers have the same surface tension, same lubricity, and virtually the same chemistry as PTFE fibers, surprisingly their crimp is controllable and sharp and angular when a stuffer-box crimper is properly used. The resulting fibers are easily carded, in fact, they can be used as a processing aid to help card other PTFE fibers, which is an unexpected benefit. The ability to achieve sharp angular crimp in a perfluoropolymer fiber is as important as the disclosure in U.S. patent 6,479,143 that branched perfluoropolymer fibers are an improvement.

The sharp angular crimp that Applicants have achieved, like the branching disclosed in U.S. patent 6,479,143, greatly enhances mechanical entanglement and loft. Unlike the branched fiber of U.S. patent 6,479,143, the crimp Applicants achieve also improves the carding step as it keeps the fibers high on the card so that they may pass through the process easily.

U.S. patent 6,479,143 teaches only a single benefit of the use of meltable fluoropolymer fibers in woven and nonwoven fabrics. U.S. patent 6,479,143 states (column 3, lines 44-47) "The present invention further can provide a thermal bonding type nonwoven fabric of fluorine-containing resin which could

not be obtained in a nonwoven fabric of conventional PTFE fibers". U.S. patent 6,479,143 also states (column 9, lines 27-31) "...since a heat-meltable fluorine-containing resin is used as the fluorine-containing resin, a thermal-bonding type nonwoven fabric can be produced using the fluorine-containing resin as a thermo-fusing component." In neither of these sections does U.S. patent 6,479,143 disclose the improvement or specific fabric property that is improved by the thermal fusing of fibers. The only description of the effect of fiber bonding is (column 12, lines 6-8) where U.S. patent 6,479,143 states "In the sheet, fibers were formed into continuous fibers thermally bonded with each other at contacting points thereof". So, as with fiber branching, U.S. patent 6,479,143 is teaching that the melting of the melt processable fibers leads to fiber-to-fiber adhesion within the nonwoven product, apparently improving the mechanical properties although he does not identify this specifically.

Although U.S. patent 6,479,143 teaches the ability to fuse fibers within a web, Applicant's discoveries are as important and unexpected as those of U.S. patent 6,479,143. First, in some types of filters the filtration media or membrane is folded or "Pleated" to increase surface area. For the most demanding environments pleated filters are made with expanded PTFE membrane. To support the PTFE membrane it is desirable to have a perfluoropolymer media that can be sharply pleated. In the past this has been difficult to achieve since PTFE and other perfluoropolymers do not easily form a sharp edge when folded or pleated. Applicants have discovered that by melt fusing some of the melt processable perfluoropolymer fibers within a light web (claim 13), a web can be



made that is sharply pleatable and ideally suited for membrane support in pleated membrane filters. This is not taught nor suggested by U.S. patent 6,479,143. It would not be obvious to one of ordinary skill in the art since the formation of well pleated perfluoropolymer support webs have not been demonstrated previously.

Another concern during the manufacturing of filtration components is the manner by which they are assembled or fastened together. Up until now, filter bags made with PTFE felts, either with or without expanded PTFE membranes, have been sewn together. Sewing has two problems. First, the sewn seam relies upon the strength and long-term integrity of the thread. If the thread breaks an opening will form and possibly grow along the seam. Perhaps more important, and ironic, the first thing done to a new filter bag is to punch holes into it during the sewing process. Each seam in the filter bag is riddled with holes from the sewing process and there is risk that these holes can eventually lead to areas of leakage or particle bypass. Applicants have discovered and have claimed (see claims 20, 21, 57, and 58) that thermally fused seams, with strength equal to or greater than the non-seamed fabric, can be produced thermally when melt processable perfluoropolymer fibers are present in the proper amount. These seams can be made using conventional seaming equipment and eliminate the risk of broken threads as well as the holes left behind during the sewing process.

Although U.S. patent 6,479,143 discloses fiber-to-fiber adhesion within a web (again only as a way to contribute overall web mechanical properties which is not quantified) U.S. patent 6,479,143 does not teach that webs containing

melt processable fibers in the proper amount can be thermally seamed. This is a very different attribute, and a very beneficial attribute that Applicants have discovered. Since the surface energy of a perfluoropolymer is extremely low, and because perfluoropolymers are very inert, it was not anticipated that melted fibers would allow thermal seaming strength equivalent to the non-seamed web.


An important construction for filtration bags and devices is membrane attached to a nonwoven fabric or felt. For the most severe environments an expanded PTFE membrane is attached to a PTFE or perfluoropolymer felt. The most common method of attachment is lamination using an adhesive. Applicants have discovered and have claimed (see claims 20, 21, 57, and 58) that when the proper amount of melt processable perfluoropolymer fibers are present within the felt, no adhesive or additional additives are needed to laminate the expanded PTFE membrane to the felt. This is a very beneficial and unexpected discovery.

As with thermal side seaming, U.S. patent 6,479,143 does not teach nor anticipate that the melt processable perfluoropolymer fibers can be used to secure materials like membranes to the surface of perfluoropolymer felts. As with thermal side seaming, one is not able to anticipate if the meltable perfluoropolymer fibers, with very low surface energy and inert surfaces, will stick sufficiently, if at all, to an expanded PTFE membrane. Applicants have discovered that adhesion is possible and the adhesion is equivalent to the adhesion that is developed using adhesives. This is a great benefit to the industry as it eliminates a step in the process and also eliminates possible environmental concerns associated with volatile organic compounds (VOCs) and

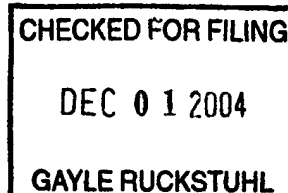
other possible emissions from emulsion based adhesives commonly used in this application.

In the event there is any fee required in connection with this submission, please charge the same to applicants' undersigned counsel's Deposit Account No. 50-1943.

Date: 1 December 2004

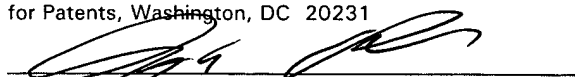
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